



Level 3
Communications

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September 16, 1998

SEP 16 1998

Magalie Roman Salas, Esq.
Secretary
Federal Communications Commission
1919 M Street, N.W.
Room 222
Washington, DC 20554

RE: Errata to Level 3 Communications, Inc.'s Comments in CC Docket No. 98-146,
Inquiry Concerning the Deployment of Advanced Telecommunications Capability

Dear Ms. Salas:

Level 3 Communications, Inc. ("Level 3") filed comments in the above-referenced docket on September 14, 1998. In its filing, on page 8, Level 3 references comments it had previously filed in CC Docket No. 98-5. Although a copy of the Level 3 Comments filed in CC Docket No. 98-5 should have been included as Attachment A to Level 3's September 14 filing, Attachment A was mistakenly omitted from Level 3's filing. By this errata, Level 3 is submitting a complete copy of its Comments, including Attachment A. I apologize for any inconvenience this omission may have caused.

I would appreciate it if you would please date-stamp the enclosed extra copy of this filing and return it with the messenger to acknowledge receipt by the Commission. If you have any questions regarding this submission, please do not hesitate to contact me.

Sincerely,

Terrence J. Ferguson

Terrence J. Ferguson
Senior Vice President and Special Counsel

cc: ITS
Janice Myles

CHY

ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of

Inquiry Concerning the Deployment of
Advanced Telecommunications
Capability to All Americans in a Reasonable
and Timely Fashion, and Possible Steps
to Accelerate Such Deployment
Pursuant to Section 706 of the
Telecommunications Act of 1996

CC Docket 98-146

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SEP 14 1998

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Comments of Level 3 Communications, Inc.

Level 3 Communications, Inc. ("Level 3") respectfully submits the following comments in response to the Notice of Inquiry ("NOI") in the above-captioned proceeding concerning the deployment of advanced telecommunications capacity to all Americans.¹

I. Introduction and Summary

As an initial matter, Level 3 commends the Federal Communications Commission ("FCC") for issuing this NOI in fulfillment of its statutory duties. Level 3 also commends the FCC for rejecting the petitions filed by several Regional Bell Operating Companies ("RBOCs") which sought to bootstrap Section 706 as a means to eviscerate the key mechanisms in the Telecommunications Act of 1996 ("1996 Act") designed to accelerate the deployment of advanced telecommunications capacity ("ATC") to all Americans.

¹ *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996*, CC Docket No. 98-146, Notice of Inquiry, FCC 98-187 (rel. Aug. 7, 1998) ("NOI").

In these comments,² Level 3 shows that it is offering and planning to offer ATC and enhanced services to its customers.³ Level 3's targeted customer base includes both business and residential consumers in diverse geographical areas, both nationally and internationally. Although Level 3's comments focus solely on its planned deployment of ATC and enhanced services, Level 3 expects that many other providers of competitive services will submit information concerning their deployment of ATC and enhanced services. While any one provider may not provide service to all Americans, collectively, the ATC and enhanced service offerings of competitive providers and incumbent providers will reach all Americans. Level 3 is confident that after collecting the information required by Section 706 of the 1996 Act, the FCC will determine that ATC is being deployed on a reasonable and timely basis to all Americans and that market forces are already addressing the burgeoning demand for data transmission capacity.

II. Level 3's ATC and Enhanced Service Offerings

Level 3 is a communications and information services company that is building an advanced Internet Protocol ("IP") technology-based network across the U.S., connecting

² At this time, Level 3 does not comment on others' deployment of ATC, the definition of ATC, what constitutes reasonable and timely deployment of ATC, or what actions the FCC should take to remove barriers to deployment. Level 3 reserves its right to address these issues, which will be raised by other commentors, in its reply comments.

³ In these comments, Level 3 generally describes the IP-based network and services it plans to offer without necessarily distinguishing whether a specific service is an advanced telecommunications service or an unregulated enhanced service subject to the FCC's ancillary jurisdiction over wire communications.

25 cities. Level 3's network is scheduled to be completed in phases by 2001. The company also plans to build local networks in cities across the country and to interconnect these city networks with its national long distance network. Additionally, the company has announced plans to expand internationally.

The Level 3 network will be the first national communications network to use Internet technology end-to-end. Level 3 will focus primarily on the business market using its IP-based network to provide a full range of communications services -- including local, long distance and data transmission -- as well as other enhanced services. Additionally, the company will offer a range of Internet access services at varying capacity levels, and, as technology development allows, at specified levels of quality of service and security to meet the needs of its business customers. Level 3 plans to begin providing services in as many as 15 major U.S. cities by the end of 1998

Level 3 shaped its strategy to build an IP-based network from the ground up because of a fundamental shift that is occurring in the communications industry -- a shift as important as that from the telegraph to telephone or from mainframe to the personal computer. It is a shift that Level 3 and a growing number of industry experts believe will change the way people communicate at a fundamental level.

That change is a move from the traditional "circuit switched" networks that were designed primarily for voice communications -- and which have served customers well for close to a century -- to newer "packet switched" networks using IP. The new technology

makes it possible to move information at a much lower cost, because packet switching technology makes much more efficient use of the network capacity.

Level 3 believes it is well positioned for the fundamental shift to the new technology because the company has no investment in, or commitment to, the older circuit-switched technology. The company will therefore build its network from the ground up with the new IP technology. Equally important, the company plans to design the network to be upgradeable, so it can evolve as the technology evolves – what Level 3 calls a “continuously upgradeable network.” Furthermore, unlike current IP telephony providers, Level 3 will provide a seamless service to its customers that is transparent both to end users and the traditional public switched telecommunications network (“PSTN”). The transparency is enabled by a “soft switch,” which translates packetized information into a form that the PSTN recognizes as circuit-switched.

The power of the flexibility of IP technology may be briefly illustrated by one of the services Level 3 proposes to offer to its virtual private network (“VPN”) customers. A customer leasing VPN facilities from Level 3 is acquiring a certain quantum of telecommunications throughput with such parameters as may be agreed upon between the carrier and the customer: transmission rates; throughput capacity; origination and termination points; network monitoring; degree of redundancy; and the like. But unlike the customer leasing traditional circuit-switched telephony, the IP-based telecommunications customer retains the capability to configure the facilities for an intranet, an extranet, or for

high density flow of particular data streams. Not only may the customer configure the capacity in any one of numerous ways, and at any time of day, but equally important, the customer will be able to alter that configuration by accessing Level 3's web homepage and, by inputting certain data, modify the configuration of the VPN on a realtime basis. Level 3 need not even know of the change because Level 3's network has been designed to accept such reconfigurations routinely.

Level 3's advanced IP-based network will enable business customers to benefit from the lower cost and service offerings made possible by Internet technology. Equally important, Level 3 has an operating subsidiary, PKS Information Services, Inc. (PKSIS), that provides computer outsourcing and systems integration services to businesses. PKSIS also helps corporations update their legacy systems so that they are "web enabled" -- that is, technically able to take advantage of the benefits of Internet technology. That, in turn, helps Level 3 to provide service to these customers using Internet technology and thereby to move the customer's communications traffic seamlessly onto Level 3's IP-based network.

The new network is the natural evolution of the web-enabling business of PKSIS. Customers will be able to get an end-to-end solution -- their systems updated for Internet technology and the ability to move their information over a new IP-based network. Customers will also be able to get both critical needs met by one supplier -- Level 3 Communications, Inc.

III. Level 3's Target Markets and Customers

Level 3's subsidiary, Level 3 Communications, LLC, is actively seeking licenses and authorizations from regulators in the U.S., the European Community, and the Pacific region to establish a world-wide state-of-the-art communications network, offering to business and government users high speed and high quality services including, but not limited to, switched voice, data, facsimile, private line, virtual private line, and web-hosting. Level 3 will also be a carriers' carrier. Furthermore, beginning first quarter 1999, in select cities, Level 3 intends to expand its service offerings to provide presubscribed long distance services to residential consumers. Level 3 has received authorizations to provide local and long distance services in 14 states⁴ and the District of Columbia and has filed applications in 12 additional states. Level 3 has also obtained Section 214 authority from the FCC and has filed applications with international regulatory authorities in the United Kingdom.

IV. Level 3's Access to Financing

Level 3 was listed on the Nasdaq National Market on April 1, 1998 ("LVLT") and was added to the Nasdaq 100 index on August 27, 1998. The company's market capitalization is approximately \$11.9 billion. On April 28, 1998, Level 3 received \$1.94 billion of proceeds from an offering of \$2 billion in Senior Notes.

⁴ The initial 14 states include California, Colorado, Georgia, Illinois, Massachusetts, Michigan, Maryland, New Hampshire, New Jersey, New York, Pennsylvania, Texas, Virginia and Washington.

V. Level 3 Network Buildout

Level 3 plans to lay approximately 23,000 network miles of fiber-optic cable on three continents. Level 3 selected Peter Kiewit Sons', Inc. to construct the Level 3's 15,000 mile intercity U.S. network. The overall cost of building this network is estimated at \$2 billion. In July, 1998, Level 3 entered into a cost-sharing and IRU agreement valued at \$700 million with Internext, LLC, regarding the construction of a multiconduit fiber optic nationwide communications system. Under the agreement, Internext acquired the right to use 24 fibers and certain associated facilities installed along the route of the system. Also, under the terms of the agreement, Internext acquired the right to an additional conduit for its exclusive use and to share costs and acquire rights to additional fibers in certain subsequent cable installations in Level 3 conduits.

Until Level 3's network is completed, Level 3 will be leasing a national network from Frontier Communications International, Inc. ("Frontier"). Under the companies' agreement, Level 3 will lease approximately 8,300 route miles of OC-12 network capacity on Frontier's new 13,000 SONET fiber optic, IP-capable network for a period of up to five years. The Frontier agreement requires an aggregate minimum payment of \$165 million over its five-year term but does not impose monthly minimum consumption requirements on Level 3, allowing Level 3 to order, alter or terminate circuits as it deems appropriate. As Level 3's network segments are completed, Level 3 will begin to take Frontier's leased network portions out of service.

VII. CLEC Bypass of the Local Loop Is Not Feasible in the Short to Medium Term


Level 3's business plan contemplates in the early stages reliance on existing circuit-switched facilities, particularly the local loop. Level 3 has recently filed comments in CC Docket No. 98-5 that address in detail the bottleneck issues facing providers of high-bandwidth digital communications services.⁵ Rather than repeat those facts and arguments here, Level 3 attaches a copy of its comments on the LCI Petition as Exhibit A hereto, and incorporates them by reference. As explained in Exhibit A, TCP/IP-based communications networks, such as Level 3's, will face even more significant bottleneck issues than competitive networks built to traditional telephony standards. IP networks face both physical and bandwidth bottlenecks in seeking "last-mile" access to customer's premises. The full potential of these networks cannot be realized unless their operators can obtain technically efficient and economically reasonable access to the bandwidth of the embedded loop network. Without such access, only those businesses that can afford dedicated high-capacity facilities will be able to benefit from the full potential of Internet-based information and other packet-switched telecommunications services. Efficient and affordable access to loops will be the only viable means of bringing these services to the vast majority of residential consumers, as well as many small and mid-sized businesses which cannot afford high-capacity facilities.

⁵ Comments of Level 3 Communications, Inc., *Petition of LCI Telecom Corp. for Declaratory Rulings*, CC Docket No. 98-5 (filed Mar. 23, 1998).

VI. Conclusion

As demonstrated above, Level 3 is providing, and intends to provide, ATC and enhanced services to commercial (including business, government and carrier) and residential customers. Level 3 urges the FCC to recognize the contributions competitive carriers such as Level 3 are making to the ATC and enhanced services markets and the significant investments competitive carriers are committing to providing such services to all Americans.

Respectfully submitted,


Terrence J. Ferguson
Senior Vice President and Special
Counsel

Dated: September 14, 1998

Level 3 Communications, Inc.

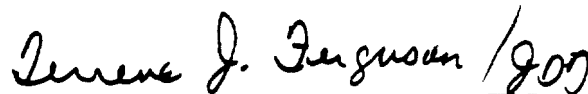
CERTIFICATE OF SERVICE

I, Terrence J. Ferguson, hereby certify that on this 14th day of September, 1998, a copy of the foregoing **COMMENTS OF LEVEL 3 COMMUNICATIONS, INC., CC Docket 98-146**, was served on each of the following parties via hand delivery.

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A handwritten signature in cursive script that reads "Terrence J. Ferguson / 909".

Terrence J. Ferguson

COPY

EXHIBIT A

DATE STAMP & RETURN

REC'D 50

MAR 26 1998

*ADDITIONAL INFORMATION
PLEASE SEE EXHIBIT*

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of

Petition of LCI Telecom Corp.
for Declaratory Rulings

CC Docket No. 98-5

COMMENTS OF LEVEL 3 COMMUNICATIONS, INC.

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Summary

LCI's Petition for a "Fast Track" approach to Section 271 raises issues that must be very familiar to this Commission. At every turn in the development of competition in the telecommunications industry, this Commission has had to deal with the refusal and reluctance of incumbent providers to offer their competitors full, fair, non-discriminatory and economically reasonable access to their networks. These issues arise again and again because there is an inherent conflict of interest between the incumbent's interest in maximizing its profits in the competitive segments of the market (which can be achieved by denying or restricting, as much as possible, competitors' access to the bottleneck elements of the network), and the public's interest in efficient, innovative, and affordable services (which requires that all competitors have comparable access to the bottleneck elements). The continuing problems with local competition, as described in LCI's Petition, are the direct result of this conflict of interest.

If the Nation is to realize the benefits that Congress intended in adopting the Telecommunications Act of 1996, it is imperative that the Commission resolve the problems arising from the BOCs' dual role as competitor and as operator of bottleneck facilities. Level 3 and other entrepreneurial companies are currently investing billions of dollars in the backbone infrastructure needed to provide advanced telecommunications and information services, including new Internet applications, to consumers and businesses. But, without efficient and reasonably-priced access to the BOC loop bottleneck (which is also a bandwidth bottleneck), these services will not be within the reach of ordinary consumers or small businesses. The technology to bridge the last mile exists, but the BOCs and other ILECs control the transmission facilities needed to use this technology.

History teaches that there is only one effective way to eliminate the BOCs' interest in preserving their downstream market share by impeding competitive

access to their bottleneck facilities: divestiture. The ownership of bottleneck facilities must be separate from any entity engaged in marketing retail services that depend on access to the bottleneck. This solution worked in the long distance market; no other attempted remedy, in any other market segment, has ever been a long-term success. It may be *theoretically* possible to use regulatory tools such as accounting safeguards, disclosure requirements, and complaint adjudication to combat denial of access, discrimination in prices and service quality, and other forms of bottleneck abuse. These tools can never be a *practical* solution, however, because regulators' resources are inherently limited and no matter how vigorously these tools are applied, the underlying incentive to exploit the bottleneck will remain intact.

The LCI "fast track" proposal, unfortunately, does not go far enough in addressing the problem. First, LCI's proposal does not distinguish between the bottleneck elements of the network, namely the loop facilities and the wire centers where competitors can access the loops, and other elements (switches, interoffice transport, signaling) that can more feasibly be provided by competitors. Second, LCI's proposal does not limit the BOC's ownership or control of the bottleneck facilities ("NetCo"), but instead provides a limited (and potentially ineffective) separation of ownership between the BOC and the entity marketing retail services ("ServeCo").

Level 3 therefore proposes that the Commission convert this proceeding into a broader investigation of structural alternatives for BOCs. The Commission should not limit this proceeding to an up-or-down consideration of LCI's specific proposal. Rather, it should consider Level 3's suggestion of divestiture of an independent loop company, as well as other alternatives such as an "independent system operator" that would manage the loop facilities but not own them.

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of

Petition of LCI Telecom Corp.
for Declaratory Rulings

CC Docket No. 98-5

COMMENTS OF LEVEL 3 COMMUNICATIONS, INC.

Level 3 Communications, Inc. ("Level 3"), pursuant to the Commission's *Public Notice*, DA 98-130 (released Jan. 26, 1998), respectfully submits the following comments concerning the Petition of LCI International Telecom Corp. ("LCI") for Expedited Declaratory Rulings (the "Petition").

As explained below, Level 3 commends LCI for identifying a critical public policy issue and for starting a debate on this issue in its Petition, although we cannot support the specific solution proposed by LCI. LCI has correctly and thoughtfully analyzed the incentives and inherent conflicts arising from the Bell Operating Companies' ("BOCs") current and, if they have their way, much more extensive future participation in retail telecommunications services markets while controlling essential facilities to which their competitors need access. LCI's proposed "Fast Track" plan, however, would not eliminate these conflicts or create an incentive for the BOCs to encourage full utilization of their bottleneck facilities by competitors.

Although Level 3 thinks that the LCI proposal does not go far enough, we urge the Commission not simply to reject this proposal but to investigate the issues raised by LCI more thoroughly and to explore alternative approaches. The Commission and other telecommunications policy makers must find an effective solution to the issues identified by LCI if they are to achieve the widely-

shared goals of promoting efficiency, competitiveness, universal service, and increased consumer benefits in the telecommunications industry.

Introduction

Level 3, formerly named Kiewit Diversified Group, Inc.,¹ has recently announced plans to refocus its assets from multiple industries, and concentrate on its telecommunications and information services business. The company intends to provide a full range of information and communication services, primarily to businesses, over the first end-to-end network designed and built specifically for Internet Protocol (IP) based services. Level 3 expects to offer services over interconnected local and long distance networks it is building across the United States, and to expand internationally.

Level 3's business plan gives it a very keen interest in the issues raised by the LCI Petition. TCP/IP-based communications networks, such as Level 3's, will face even more significant bottleneck issues than competitive networks built to traditional telephony standards. IP networks face not only the same issues of physical access to customer premises as telephony networks, but also must overcome the additional hurdle of efficient access to bandwidth. The Public Switched Telephone Network (PSTN) is both a physical bottleneck, in that it is the only feasible method of access to the vast majority of customer premises, and a bandwidth bottleneck because PSTN facilities were designed to carry voice-grade analog communications. Recent technological developments have begun to unlock the bandwidth that theoretically exists within the massive deployed base of copper loops. ISDN technology permits transmission of 144

¹ Under its former name, Level 3 was the original majority stockholder of MFS Communications Company, Inc. Our current management team includes many former MFS executives. Additional information about Level 3 is available on the Internet at <http://www.L3.com/>

kilobits per second (kbps) of digital bandwidth over copper loops, while more recent and still-evolving Digital Subscriber Line ("xDSL") equipment can multiply this bandwidth to 6 megabits per second (mbps) or more on suitable facilities.

Just because these technical advances are available, however, doesn't mean that competitors can make use of them effectively. Anyone wanting to deploy high-bandwidth services to American homes or businesses on anything more than a niche basis must obtain access to the bottleneck facilities of the BOCs and other incumbent LECs. Because, as discussed below, current regulatory policies are not effective in encouraging the ILECs to offer access to these facilities on terms that encourage technical development and efficient investment in telecommunications networks, new approaches must be found to create an environment in which these incentives will exist.

The issue of access to the loop bottleneck is critical to the development of advanced telecommunications and information services in the United States. Congress has made it abundantly clear, in Sections 7(a) and 254(b)(2) of the Communications Act of 1934, 47 USC § 157(a), 254(b)(2), and Section 706 of the Telecommunications Act of 1996, that the public policy of the Nation is to facilitate the widespread deployment of these services. Just recently, Chairman Kennard described the immense potential benefits of this policy as follows:

"... the telecom industry is not just about to enter a revolution. It's in one.

"One of the megatrends of that revolution is technical: digitalization.

"Digitalization means that all communications technology will be the delivery of digital bits. It may be voice. It may be video. It may be audio.

"But it's all digital bits.

"A second megatrend is bandwidth -- how that data gets to you, how you get to that data. In this technological revolution I want to

see Moore's law applied to communications -- a market so vibrantly competitive that transmission speeds double every 18 months."²

Commissioner Powell has similarly recognized the significance of the growth of the Internet:

"the Internet . . . promises to match the advances brought about by all the other developments I described combined. This is so, not so much because of what it presently offers consumers, but what it teaches about the innovation potential of networks that are engineered as it is. The true genius of the Internet is that it uses an open architecture that allows users at different computers to share and manipulate information in a way that is virtually unhindered by the transmission media over which this information is carried, thus placing in the hands of millions of innovators a low cost option for creating, and distributing, their creations. The potential is boundless and holds the promise that, in the future, it will be near impossible to maintain a monopoly of communications goods and services."³

Along the same lines, former Chairman Reed Hundt recognized, "we need a highspeed, congestion-free, always reliable, friction-free, packet switched, big bandwidth, data friendly network that is universally available, competitively priced, and capable of driving our economy to new heights. We need a data network that can easily carry voice, instead of what we have today, a voice network struggling to carry data."⁴

These visions of the future cannot be turned into reality unless providers of high-bandwidth, packet-switched services can obtain technically efficient and

² Hon. William Kennard, remarks to Legg Mason "Telecom Investment Precursors" Workshop, March 12, 1998 (as prepared for delivery).

³ Hon. Michael Powell, "Technology and Regulatory Thinking: Albert Einstein's Warning," remarks to Legg Mason Investor Workshop, March 13, 1998 (as prepared for delivery).

⁴ Hon. Reed Hundt, "The Internet: From Here to Ubiquity," speech to the Institute of Electrical and Electronics Engineers, Aug. 26, 1997 (as prepared for delivery).

economically reasonable access to the bandwidth of the embedded loop network. Without such access, only those businesses that can afford dedicated high-capacity facilities will be able to benefit from the full potential of Internet-based information and other packet-switched telecommunications services. Efficient and affordable access to loops will be the only viable means of bringing these services to the vast majority of residential consumers, as well as many small and mid-sized businesses who cannot afford high-capacity facilities. Indeed, extending high-bandwidth access to tens of millions of new customers will create incentives for the development of innovative new services and applications that are technically possible, but not economically viable, with today's network.

Thus, the Commission should not underestimate the economic significance of the issues raised in this proceeding. Billions of dollars of investment in infrastructure and multiples of that in economic growth resulting from use of the infrastructure are at stake. If the Commission wishes to promote economically efficient investment in the telecommunications technologies of the 21st Century, it must assure that those who make the investment will have reasonably-priced, technically-efficient and non-discriminatory access to the bottleneck loop network. And, as the following comments will explain, the current structure of the ILEC industry in general, and of the RBOCs in particular, is inherently at odds with this goal.

I. **BOCs Will Have an Unavoidable Conflict of Interest As Long As They Control Bottleneck Facilities Used by Their Downstream Competitors**

LCI's discussion of barriers to entry, at pages 5-11 of its Petition, is an accurate account of the obstacles erected by the BOCs to delay and deter the efforts of competitors to access their networks. To the three barriers (OSS, unbundled network elements, and pricing) identified by LCI, Level 3 would add

a fourth critical impediment—the bandwidth bottleneck described in the introduction. The BOCs as a rule have been extremely reluctant to provide competitors with unbundled loops that have been conditioned to provide high-bandwidth services (or, for that matter, any service other than Plain Old Telephone Service), even though the Commission's *Local Competition* decision unambiguously requires them to condition loop facilities for these purposes where technically feasible.⁵ The BOCs frequently claim that conditioned loops are unavailable or that technical constraints prevent them from meeting the customer's transmission specifications, *even when the BOC or its affiliate is advertising the availability of ISDN or xDSL service in the same market, or providing DSL circuits using HDSL equipment (all of which require similar conditioning).*

LCI is also correct that the "common thread" in the barriers to entry is BOC conflicts of interest, as discussed at pages 11-12 of its Petition. This contention is not surprising—experience teaches that a monopolist who controls an essential facility will always have an incentive to discriminate in providing access to that facility to its rivals in downstream markets. The examples are too numerous to catalog, with the behavior of the pre-divestiture Bell System as the prime exhibit of this inherent trait of monopoly. If LCI's analysis of the current situation has any shortcoming, it is in glossing over the actual source of the BOCs' monopolistic incentive. LCI suggests that the BOCs' conflict of interest arises from their role as "operator of the local wireline network that all carriers rely upon to provide retail services" Petition at 11. More precisely, however, the conflict arises from their control of *bottleneck* facilities, namely the loop network. Other

⁵ *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, 11 FCC Rcd. 15499, paras. 380, 382 (1996), *aff'd in pertinent part and vacated in part, Iowa Utilities Board v. FCC*, 120 F.3d 753 (8th Cir. 1997), *cert. granted, AT&T v. Iowa Utilities Board* (U.S. Jan. 26, 1998).

components of the BOC networks can be duplicated or substituted on an economically reasonable basis (e.g., interoffice transport, local switching, and signaling). Only the loop network cannot feasibly be provided on a competitive basis, and therefore this is the source of both the BOCs' monopoly power and their conflict of interest.

Because switches, signaling, and interoffice transport are relatively easily duplicated, the BOCs have no incentive to restrict or increase the cost of access to these elements of their networks (except to the extent they can tie these elements to the bottleneck loops). If a BOC did seek to increase the cost, impair the quality, or otherwise discourage access to its non-bottleneck network elements, competitors could resolve the problem relatively easily by installing their own facilities or buying similar services from a third party.⁶ In fact, many carriers have already done so. Although switching and interoffice transport require significant investment, the capital markets have been willing to finance investments in these facilities by numerous IXCs and CLECs. The same options do not exist, as a practical matter, for most loops. The cost of installing ubiquitous loop facilities throughout an area would be greater, by at least an order of magnitude, than the cost of the switching and transport needed to serve the same area. The impracticality of such a venture is clear from the simple fact that no carrier, even AT&T or a BOC (out of its own service territory), has been willing or able to invest its capital in constructing duplicate loops outside of limited high-density areas. Even if the capital for loop construction were available, the prospective operator would face further hurdles in obtaining

⁶ We are not suggesting that the BOCs will necessarily "behave themselves" with respect to non-loop elements, as in fact there are many instances of discriminatory and exclusionary behavior by the BOCs. But, as discussed in the text, competitors have "self-help" remedies available with respect to non-loop elements that simply do not exist, as a practical matter, when seeking access to loops.

access to public and private rights-of-way, and construction times that would be at least several times greater than for construction of a transport backbone.

Nor is there any realistic prospect that new technologies will enable widespread loop competition in the foreseeable future. As the Commission is well aware, prognostications of new loop technologies, including fiber to the home, hybrid fiber-coax, and wireless loops, were a dime a dozen in 1993-94, and formed part of the background to the Telecommunications Act. But none of these technologies made the leap from trade-press speculation to actual commercial operation, and limited market trials simply demonstrated that none of these systems could compete effectively against copper wire. Even a few years ago, it seemed clear that there was no real prospect for replacing copper loop technology.⁷ Today, this is even truer because the development of xDSL has opened new bandwidth for exploitation, making it harder to justify the use of alternative technologies and extending yet again the economic life of the copper loop.

Because the loop will remain the fundamental bottleneck in the nationwide telecommunications network for the foreseeable future, it will also remain the key to the BOCs' inherent conflict of interest. Resolution of this conflict is the central telecommunications policy issue confronting the Commission today. As discussed in the following sections, however, while LCI has correctly identified the problem, it has fallen short of devising an effective solution.

⁷ See RM-8614, *Unbundling of Local Exchange Carrier Common Line Facilities*, Petition for Rulemaking filed by MFS Communications Company, Inc., March 7, 1995, at 6-8.

II. The Solution to the Bottleneck Problem Must Eliminate the BOC Incentive to Restrict Access to its Loop Network

LCI's "Fast Track" proposal would be based on separation of the BOCs' "retail" operations from their "wholesale" functions (i.e., provision of network elements and bundled "wholesale" services). Although this proposal incorporates the essential element of structural separation, and therefore would represent a major improvement over the status quo, it still has two critical flaws. First, the wholesale/retail distinction does not recognize the differing competitive characteristics of different elements of the so-called "wholesale" function, so that NetCo, the wholesale entity in LCI's plan, would still have internal conflicts of interest. Second, LCI's proposed structural solution of requiring the spin-off of at least a minority stock interest in ServeCo, the retail subsidiary, seems backwards because it is the entity controlling the bottleneck functions (NetCo), not the retail entity, whose potential misconduct needs to be restrained.

A. Structural Separation is Indispensable if the Commission is to Resolve the BOCs' Conflict of Interest

LCI identifies structural separation as the key tool for diffusing the BOCs' conflicts of interest and removing barriers to entry. Petition at 12-13. Level 3 agrees that structural separation must be an essential component of any plan that will be effective in dealing with these conflicts. The old Bell System, again, is the best evidence. Years of regulatory and judicial intervention, despite intensive efforts at great expense by both government and private parties, were not successful in turning the BOCs from their historic pattern of delaying, discouraging, and impeding long distance competition. Divestiture, however, quickly and effectively changed the BOCs' incentives and behavior. Old habits did not die instantly, especially given the extensive personal relationships and close physical proximity in many locations between the BOCs and their former parent company. Still, it took only a few years for the BOCs to realize that there

was no benefit to them in favoring one long distance company over another, and that their only interest was in facilitating as much usage of their network by long distance companies in general as they could. Today, it would be laughable to suggest that any BOC is likely to act in any way to create an advantage for its former parent company, or even for one of its former siblings (short of undoing the structural separation by merger or acquisition).

The lesson of the Bell System is that structural separation is much more effective in removing conflicts of interest stemming from control of bottleneck facilities than any other approach. Non-structural efforts to solve this problem inevitably require extensive and intrusive government oversight of the operation of the regulated company's business. This oversight, as a practical matter, can never be really effective because of budgetary constraints, plus the obvious fact that it is impossible for any regulator to understand a company's business as well as the company itself does. At the same time, this regulatory intrusion impairs the efficiency of the entire industry, since the regulated company's facilities (by definition) are crucial to the entire industry, and passes through to its competitors the added costs spawned by regulation. True structural separation, which includes a separation of ownership, and not mere segregation of services into different subsidiaries within the same enterprise (as in *Computer II*), is the only remedy for bottleneck conflicts that can be achieved with reasonable cost and speed.

B. Structural Separation Must Isolate the Bottleneck Elements (Loops) from the Other Elements of the BOC Network

As discussed in Section I, above, the BOC loop networks have bottleneck characteristics that are not shared by other elements of the BOC networks. Absent structural separation, BOCs have incentives to limit competitive access to the bottleneck loops: to restrict the use of these loops for new services such as